Queensland Community Pharmacy Scope of Practice Pilot

Impetigo - Clinical Practice Guideline

Guideline Overview

Pilot and professional obligations

- Initial patient eligibility and suitability for management within the scope of the pilot
- Patient informed consent
  - Pilot participation
  - Financial
  - Pharmacist communication with other health practitioners
- Professional standards
- Privacy
- Documentation and record keeping
- Interprofessional communication

Gather information and assess patient's needs

- Patient history
  - Residence in endemic areas
- Examination
  - Clinical features and presenting symptoms
- Investigations
- Complications of impetigo
  - People at high risk of complications

Management and treatment plan

- General and preventative measures
- Treatment of co-occurring skin conditions with standard pharmacist care or referral to a medical practitioner
- Pharmacotherapy
  - Topical antibiotics
  - Empirical oral antibiotics

Confirm management is appropriate

- Contraindications and precautions
- Drug interactions
- Pregnancy and lactation

Communicate agreed treatment plan

- How to use
- Patient resources/ information
- Adverse effects
- General and preventive advice
- Communication with other health practitioners

Refer when

Refer to a medical practitioner if:

- The patient has 'red flag' warning signs
- A clear diagnosis of impetigo cannot be made, or other/co-occurring conditions are suspected that cannot be treated in the community pharmacy setting, e.g., viral infection, eczema herpeticum or contact dermatitis
- The patient is below the age of 12 months
- The impetigo is widespread, severe and/or has ecthyma (ulceration) present
- The patient is immunocompromised or at high risk of complications of impetigo, including ARF (refer to Table 2)
- The patient is currently, or has recently resided in a community where impetigo is endemic (refer to Table 2)
- Symptoms have not resolved after the first course of antibiotic treatment, symptoms significantly or rapidly worsen, or if impetigo infection reoccurs frequently.

‘Red flag’ warning signs at patient presentation that necessitate referral to a medical practitioner:

- Widespread, painful rash
- Raised purple rash that doesn’t blanch
- Generalised erythema that covers 90% or more of the skin surface
- Blistering of the skin and mucous membranes (that may include mouth and eyes)
- Signs and symptoms of systemic illness including fever, lethargy, headache, rash, nausea and vomiting
- Chronic sores or ulcers.

Key points

- Impetigo commonly affects children between the ages of 2 and 5 but may also affect older children and adults [1].
- While impetigo is usually self-limiting and can spontaneously resolve without treatment, Australian guidelines advise that all patients with impetigo require antibiotic treatment [2, 3].
- Rare complications of impetigo include acute rheumatic fever (ARF), acute post-streptococcal glomerulonephritis (APSGN) and sepsis [3, 4].
- The management of impetigo consists of pharmacotherapy in addition to general measures for the patient, family and community to reduce the spread [5].
- People of Aboriginal and Torres Strait Islander descent presenting for treatment of impetigo within the Pilot should be assessed on a case-by-case basis to determine the appropriate treatment pathway, and whether referral to a medical practitioner for treatment with intramuscular (IM) benzathine benzylpenicillin is required.

When applying the information contained within this clinical practice guideline, pharmacists are advised to exercise professional discretion and judgement. The clinical practice guideline does not override the responsibility of the pharmacist to make decisions appropriate to the circumstances of the individual, in consultation with the patient and/or their carer.

Refer when

- The patient has ‘red flag’ warning signs
- A clear diagnosis of impetigo cannot be made, or other/co-occurring conditions are suspected that cannot be treated in the community pharmacy setting, e.g., viral infection, eczema herpeticum or contact dermatitis
- The patient is below the age of 12 months
- The impetigo is widespread, severe and/or has ecthyma (ulceration) present
- The patient is immunocompromised or at high risk of complications of impetigo, including ARF (refer to Table 2)
- The patient is currently, or has recently resided in a community where impetigo is endemic (refer to Table 2)
- Symptoms have not resolved after the first course of antibiotic treatment, symptoms significantly or rapidly worsen, or if impetigo infection reoccurs frequently.

Gather Information and assess patient’s needs

Patient history

Sufficient information should be obtained from the patient to assess the safety and appropriateness of any recommendations and medicines.

The patient history should consider:

- age
- weight (if a child)
- pregnancy and lactation status (if applicable)
- ethnicity (Aboriginal and Torres Strait Islander, Māori or Pacific Islander)
- most recent place of residence/community and/or recent travel to a place where impetigo or ARF may be endemic (a high rate of ARF within the population)
- onset, duration, nature, location and extent of lesions
- recent skin and throat infections and treatment received
- other signs and symptoms e.g., pain, lymphadenopathy, signs of sepsis or other complications including APSGN and ARF such as fever, confusion, tachycardia, hypotension or hypertension, clammy skin, vomiting and diarrhoea, facial or peripheral oedema, severe headache, joint pain and/or hot swollen joints
- potential source of infection e.g., skin trauma, contact with people with similar symptoms
- underlying medical conditions including, skin conditions or immunosuppression that may lead to complications (e.g., atopic dermatitis, scabies, herpes simplex)
- current and recently commenced medication (including prescribed medicines, vitamins, herbs, other supplements and over-the-counter medicines)
- drug allergies/adverse drug events
- other risk factors including poor hygiene, day care settings, crowding and malnutrition.

Examination

Clinical features and presenting symptoms

Impetigo can be classified as primary or secondary form:

- the primary form is a direct bacterial infection of otherwise healthy skin
- the second form (most common) is bacterial infection of a break in the skin from trauma or pruritic conditions (impetiginisation) [6-8].

Impetigo may have a similar presentation or co-occur with other common skin conditions including contact dermatitis, thermal burns, folliculitis, dermatophytosis, candidiasis, eczema, scabies, herpes zoster, atopic dermatitis, varicella or molluscum contagiosum [4, 9-12].

Table 1. Types of impetigo

Table 1. Types of impetigo [1, 2, 7, 13-15]	
Type	**Description**
Non-bullous	• Characterised by thin-walled pustules or vesicles that may be itchy, usually not painful, rupture quickly and progress to honey-coloured crusts. Lesions have minimal or no surrounding erythema. • May start with a single vesicle that coalesces with others; often self-inoculation leads to multiple lesions, particularly on the face and extremities (although any body part can be affected). • Patients are generally otherwise well, although they may have regional lymphadenopathy. • Lesions may resolve spontaneously within 2-4 weeks without treatment and heal without scarring.
Bullous	• Presents as irritating, larger (diameter often > 1cm) fluid-filled vesicles and blisters that rupture quickly to broad-based bullae, and progress to a thin, flat yellow/brown crust. • Tends to occur on moist intertriginous areas including nappy area, axillae and neck, as well as the face, trunk and extremities. • Lesions typically have scaling on the border of the bullae (collarette). • Patients with bullous impetigo are more likely to experience systemic symptoms including fever, malaise and lymphadenopathy. • Lesions may resolve spontaneously within 2-4 weeks without treatment and heal without scarring.

Ecthyma (deep impetigo)	• Characterised by crusted sores with underlying ulcers.
	  ○ If the crust is removed, an indurated ulcer will appear red, swollen and oozing.
	  ○ Most commonly affects the buttocks, thighs, legs, ankles and feet.
	• People more likely to develop ecthyma include children, immunocompromised people, people with untreated impetigo and people living in crowded conditions with poor hygiene.
	• Lymphadenopathy may occur.
	• Lesions resolve slowly and sometimes spontaneously without treatment, although they may gradually enlarge and also scar.

Investigations

In non-endemic settings, impetigo infection is more commonly caused by *Staphylococcus aureus* as opposed to *Streptococcus pyogenes*, however infection may be caused by both types [2, 7].

Patients with impetigo in non-endemic settings do not require an initial skin swab prior to commencing empirical antibiotic therapy [2, 7, 14].

Complications of Impetigo

Complications of impetigo, particularly bullous and ecthyma, include:

- lymphangitis, lymphadenitis
- widespread infection, cellulitis, gangrene and bacteraemia
- permanent scarring [3, 7, 8, 13, 16].

Complications arising from Group A Streptococcal skin infections (more likely within endemic settings) include:

- APSGN and chronic kidney disease
- ARF
- sepsis
- osteomyelitis [3, 5, 8, 12].

APSGN

- APSGN is an immune-mediated sequalae of nephritogenic strains of *S. pyogenes.*
- May occur approximately 2 to 3 weeks after a skin or throat infection of group A streptococcus bacteria [17, 18].
- May affect any age but most commonly affects children aged between 12 months and 17 years [17, 18].
- Common symptoms and clinical features include obvious facial and orbital swelling, particularly upon waking, elevated blood pressure, proteinuria and macroscopic haematuria with dark brown urine, and lethargy, weakness and/or anorexia [18].

ARF

- ARF is an immune-mediated sequalae of *S. pyogenes* involving multiple system organs, including the heart, joints and central nervous system [19, 20].
- May occur between 1 and 5 weeks post-streptococcal infection, and is most common after recurrent streptococcal infections, particularly pharyngitis and impetigo [19, 20].
- Most frequently affects children aged between 5 and 14 years [19].
- Common symptoms and clinical features include sore and/or swollen joints, fever, increased resting heart rate facial or peripheral oedema, Sydenham chorea [12].

People considered at high risk of developing ARF are specified in Table 2.

Table 2. Individuals at high risk of developing ARF

Table 2. Individuals at high risk of developing ARF [19, 21]
Individuals aged 40 years and under
• Aboriginal and Torres Strait Islander people residing in a rural or remote area, or living in a household affected by household overcrowding (>2 people per bedroom) or of lower socioeconomic status. • Māori and/or Pacific Islander person living in a household affected by overcrowding or socioeconomic disadvantage. • People with a recent personal or family/household history of ARF or rheumatic heart disease (RHD).
Additional risk factors for individuals aged ≤ 40 years (particularly 5 to 20 years)
• People living in a household affected by household overcrowding (>2 people per bedroom) or of lower socioeconomic status. • People with current or recent residence (including frequent or recent travel to) in an area with a high rate of ARF (Australia or internationally) e.g., refugees and migrants from low-middle income countries, rural and remote communities.

Management and treatment plan

Treatment of impetigo reduces the duration of the illness, the spread of lesions, and decreases the risk of complications [2].

Pharmacist management of impetigo involves:

- **general and preventative measures:**
    - Advice and education to reduce the spread of impetigo as per the Royal Children's Hospital Melbourne Impetigo fact sheet [22].
- **treatment of co-occurring skin conditions** with standard pharmacist care or referral to a medical practitioner
- **pharmacotherapy:**
    - as per the Therapeutic Guidelines: Impetigo[1,2] [2].

NB1: Topical antibiotics are considered sufficient treatment for the majority of patients. However, they are not appropriate if the infection is widespread or multiple family/community members are infected, due to the risk of rapid resistance [1-3]. Oral antibiotics may be prescribed if appropriate. Prescription of benzathine benzylpenicillin (for intramuscular administration) requires referral to a medical practitioner.

NB2: The correct use of antibiotics is essential; extended or incorrect use may increase the risk of antimicrobial resistance, particularly for topical antibiotics, [5, 15]. Discussing the treatment regimen with patients, parent/caregiver reduces the risk that antibiotics will be incorrectly used [5]. Where the patient or caregiver's ability and/or motivation to correctly use topical treatment is in doubt e.g., when there are multiple sores, oral antibiotics should be considered, or referral to a medical practitioner for IM benzathine benzylpenicillin [2, 5]. Refer to the Primary Clinical Care Manual [p299-301] for further information [12].

Confirm management is appropriate

Pharmacists must consult the Therapeutic Guidelines, Australian Medicines Handbook and other appropriate resources to confirm the treatment recommendation is appropriate, including for:

- contraindications and precautions
- drug interactions
- pregnancy and lactation.

Communicate agreed management plan

Comprehensive advice and counselling (including supporting written information when required) as per the Australian Medicines Handbook and other relevant references, should be provided to the patient regarding:

- individual product and medicine use (dosing and duration)
- non-pharmacological, general and preventative measures
- how to manage adverse effects of treatment
- when to seek further care and/or treatment, including recognising complications of impetigo, particularly ARF and APSGN.

It is the pharmacist's responsibility to ensure the suitability and accuracy of any resources provided to patients (and parents/caregivers if applicable) and to ensure compliance with all copyright conditions.

The agreed management plan should be shared with members of the patient's multidisciplinary healthcare team, with the patient's consent.

General advice

At the time of initial consultation, patients (and parents/caregivers if applicable) should be advised to see a medical practitioner if:

- the condition does not improve within 5-10 days of starting treatment
- the patient's condition worsens, including developing systemic signs and symptoms
- the condition reoccurs after treatment course is completed
- adverse effects of treatment cannot be managed in the pharmacy setting.

Clinical review

Clinical review with the pharmacist is generally not required. If the condition does not improve or resolve, the patient should be advised to see a medical practitioner for further investigation.

Pharmacist resources

- Therapeutic Guidelines: Antibiotic
    - Impetigo
- Australian Medicines Handbook:
    - Antibacterials (skin)
    - Antibacterials
    - Skin and soft tissue infections
- Queensland Health and Royal Flying Doctors Service (Queensland branch) - Primary Clinical Care Manual (11th ed. 2022):
    - Impetigo
    - Acute post streptococcal glomerulonephritis
    - Acute rheumatic fever
- DermNet NZ:
    - Impetigo
    - Ecthyma
- MSD Manual (Professional version) - Impetigo and Ecthyma
- Australian Family Physician (Royal Australian College of General Practitioners) - Managing skin infections in Aboriginal and Torres Strait Islander children
- National Healthy Skin Guideline: for the Prevention, Treatment and Public Health Control of Impetigo, Scabies, Crusted Scabies and Tinea for Indigenous Populations and Communities in Australia
- Rheumatic Heart Disease Australia – ARF RHD Guideline and risk calculator

References

1. DynaMed: Impetigo: EBSCO Information Services; 2018 [cited 2022 February 1]. Available from: https://www.dynamed.com/condition/impetigo.
2. Therapeutic Guidelines: Antibiotic (Impetigo). Melbourne: Therapeutic Guidelines Limited; 2021 [cited 2022 September 23]. Available from: https://tgldcdp.tg.org.au/viewTopic?etgAccess=true&guidelinePage=Antibiotic&topicfile=impetigo.
3. The Australian Healthy Skin Consortium. National Healthy Skin Guideline for the Prevention, Treatment and Public Health Control of Impetigo, Scabies, Crusted Scabies and Tinea for Indigenous Populations and Communities in Australia. 2018.
4. Panesar P, Green E. Case-based learning: impetigo. The Pharmaceutical Journal. 2020;305(7941).
5. Marquardt T. Managing skin infections in Aboriginal and Torres Strait Islander children. Australian Family Physician. 2014;43(1):16-9.
6. Hartmann-Adams H, Banvard C, Juckett G. Impetigo: Diagnosis and Treatment. American Family Physician. 2014;15(90):229-35.
7. Oakley A, Quirke K. Impetigo: DermNet New Zealand Trust; 2022 [cited 2022 June 8]. Available from: https://dermnetnz.org/topics/impetigo/.
8. Rhiannon R, Dana S, Ian M, John WF. Cutaneous infection and atopic dermatitis: The importance of early intervention in Indigenous children in Australia. Wound Practice & Research: Journal of the Australian Wound Management Association. 2022.
9. DynaMed. Ipswich (MA) [Internet]. EBSCO Information Services. 1995- [cited 1 February 2022]. Available from: https://www.dynamed.com (login and registration required).
10. Therapeutic Guidelines [Digital]. Melbourne: Therapeutic Guidelines Limited; 2021. Available from: https://www.tg.org.au.
11. DermNet NZ: DermNet New Zealand Trust; 2022 [cited 2021 18 August]. Available from: https://dermnetnz.org.
12. Queensland Health and Royal Flying Doctor Service (Queensland Section). Primary Clinical Care Manual. Cairns: Office of Rural and Remote Health, Queensland Government; 2022 [cited 2022 August 30]. Available from: https://www.health.qld.gov.au/orrh/clinical-manuals/primary-clinical-care-manual-pccm.
13. Ngan V, Gomez J. Echthyma: DermNet New Zealand Trust; 2016 [cited 2021 18 August]. Available from: https://dermnetnz.org/topics/ecthyma.
14. Rehmus W. MSD Manual Professional Version: Impetigo and Ecthyma: Merck & Co; 2021 [cited 2022 June 8]. Available from: https://www.msdmanuals.com/en-au/professional/dermatologic-disorders/bacterial-skin-infections/impetigo-and-ecthyma?query=Impetigo.
15. National Institute for Health and Care Excellence (NICE). Impetigo: antimicrobial prescribing. London: Public Health England; 2020.
16. Gahlawat G, Tesfaye W, Bushell M, Abrha S, Peterson GM, Mathew C, et al. Emerging Treatment Strategies for Impetigo in Endemic and Nonendemic Settings: A Systematic Review. Clinical Therapeutics. 2021;43(6):986-1006.
17. Northern Territory Government. Acute post-streptococcal glomerulonephritis [Webpage]. Darwin: Northern Territory Government,; 2022 [cited 2022 December 1]. Available from: https://nt.gov.au/wellbeing/health-conditions-treatments/bacterial/acute-post-streptococcal-glomerulonephritis.
18. Centers for Disease Control and Prevention. Post-Streptococcal Glomerulonephritis [Webpage]. CDC; 2022 [cited 2022 December 1]. Available from: https://www.cdc.gov/groupastrep/diseases-hcp/post-streptococcal.html.
19. Therapeutic Guidelines: Antibiotic (Acute Rheumatic Fever). Melbourne: Therapeutic Guidelines Limited; 2021 [cited 2022 December 1]. Available from: https://tgldcdp.tg.org.au/viewTopic?etgAccess=true&guidelinePage=Antibiotic&topicfile=rheumatic-fever&guidelinename=Antibiotic&sectionId=toc_d1e47#toc_d1e47.
20. Centers for Disease Control and Prevention. Acute Rheumatic Fever [Webpage]. CDC; 2022 [cited 2022 December 1]. Available from: https://www.cdc.gov/groupastrep/diseases-hcp/acute-rheumatic-fever.html.

21. Ralph AP, Noonan S, Wade V, Currie BJ. The 2020 Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease. Medical Journal of Australia. 2021;214(5):220-7.
22. The Royal Children's Hospital Melbourne. Impetigo (School Sores) Melbourne: RCHM; 2020 [cited 2022 June 8]. Available from: https://www.rch.org.au/kidsinfo/fact_sheets/Impetigo_school_sores/.